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Diversity and Distributions
A Journal of Conservation Biogeography

EDITORIAL

Conservation biogeography: what's hot and what's not?

David M. Richardson

The field of conservation biogeography is enjoying strong growth. This is demonstrated by, among other things, the substantial increase in submissions to *Diversity and Distributions*. During 2011 we received 530 submissions, an increase of about 30% from 2010. The number of journal pages will increase by only 14% for 2012, which means that the competition for pages will increase substantially. Measures are being taken to ensure that we continue serving our authors well by, for example, keeping the time between manuscript submission and publication as short as possible. To this end, the journal is now being published online in 12 issues per year (up from six in 2011), with six hard copy issues which will appear every 2 months, combining two online issues. We are also giving attention to refining the scope of the journal to ensure that authors do not waste time submitting off-target papers and to ensure that we serve our readers well by publishing the most exciting, interesting and useful papers in the field.

For the past 5 years, the journal has maintained a rejection rate of about 70%, with about a third of rejections being implemented within a week of manuscript submission, without sending the manuscripts out to referees. The 70% rejection rate has happened without us setting firm targets but by immediately declining many papers (many of them excellent science nonetheless) that we judge to be removed from the journal's core business and then by setting increasingly high standards for those that are selected for further consideration. Like all other journals, *Diversity and Distributions* is increasingly struggling to find referees to review papers. It is not uncommon for us to approach 10 or more reviewers to find three who accept our invitation. Reviewers are a precious asset, and we do not want to overwork those who serve the journal. It is inevitable that we will need to raise the rejection rate and decline even more good papers that, in our view, are better suited to other journals. One aim of this editorial is to clarify what is meant by 'in our view'.

Diversity and Distributions has since 2005 had a clear focus on conservation biogeography (Richardson, 2005), which was defined by Whittaker *et al.* (2005) as 'the application of biogeographical principles, theories, and analyses, being those concerned with the distributional dynamics of taxa individually and collectively, to problems concerning the conservation of biodiversity'. The dimensions and scope of conservation biogeography were reviewed in the recent book edited by Ladle & Whittaker (2011) and in a special issue of *Diversity and Distributions* on 'Conservation biogeography – foundations, concepts and challenges' (Richardson & Whittaker, 2010).

At this point, it is worth reminding readers and contributors to *Diversity and Distributions* that the journal forms part of a subscription package with two other publications from Wiley-Blackwell: *Journal of Biogeography* and *Global Ecology and Biogeography*. The editors of the three journals work together to ensure that the package provides the best possible coverage of issues in biogeography, but also to carve distinctive identities for each journal in the growing list of titles devoted to biogeography, ecology and environmental management.

Let me start with a few comments on the type of papers that stand a good chance of not getting past first base at *Diversity and Distributions*. Many papers we receive deal with the biogeography of taxa or regions but lack a strong, or indeed any, focus on conservation implications. In most cases, we need substantially more than a sentence in the discussion saying that 'our results have important implications for conservation'. We also get numerous papers that deal with conservation issues, but which lack a clear biogeographical component. These include purely ecological studies (e.g. addressing processes that operate only or mainly at local scales), papers that discuss diverse conservation problems, and methodological or analytical contributions with tenuous links to conservation. When submitted papers tick the 'conservation biogeography' box, we still need to consider whether the contributions are sufficiently novel and of enough general interest to the journal's wide readership to merit our further attention. We try to be as objective as possible in this regard, drawing on expertise in many disciplines and from across the world in the editorial team. An important point is that papers that address key issues, hypotheses or theories of wide interest from a conservation perspective are more likely to be sent out for review than papers that explore the conservation biogeography of particular taxa or regions and which are not clearly contextualized with reference to current views and debates in biogeography, conservation biology or macroecology. In some cases, papers that fall into the latter category could be reformulated to fit the bill using particular taxa or localities as exemplars for testing general hypotheses or theories.

So what types of papers are likely to be sent out for review? I offer the following ideas under several headings that embrace a large proportion of the material in recent issues of the journal and/or where I believe there is scope for substantial work in the future under the umbrella of 'conservation biogeography'. We also welcome ideas for special features or full special issues devoted to themes discussed below, especially where these collate perspectives from differ-

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ent disciplines in addressing conservation challenges (e.g. Richardson *et al.*, 2011). Author guidelines are available online at: http://www.blackwellpublishing.com/ddi.

MODELLING THE DISTRIBUTION OF SPECIES

As the title of the journal indicates, *Diversity and Distributions* is about the biogeography and ecology of diversity and distributions. Understanding the current and potential distribution of organisms is fundamental to biodiversity conservation. We receive many submissions dealing with species distribution models (SDMs) in various guises. This is clearly a sizzlingly hot topic. Every person and their dog have access to data and MaxEnt or other programs, and people see value in modelling the distribution of species for various reasons. Papers that offer standard applications of SDMs to just one or a few species or just one more region or protected area and without novel implications for conservation will receive quick rejection notes. We are looking for innovative applications of SDMs or methodological papers that provide fresh insights into how different models can be applied to better inform biological surveys or conservation strategies or how SDMs can be integrated with other data or tools. We welcome contributions on methodological issues and the statistical underpinnings of models (e.g. Elith *et al.*, 2011), issues relating to data sources and quality and the evaluation of uncertainty, analytical pitfalls, and interpretation of results – especially where there are strong implications for data collection, survey methods or management (e.g. Wintle *et al.*, 2012). Studies that explore species–environment relationships in the context of distribution modelling for conservation applications are needed to validate model outputs (e.g. Capinha & Anastacio, 2011). Papers that elucidate special problems or opportunities in applying different models in particular situations (e.g. for climate change and invasive species) are also welcome, although I reiterate the importance of novelty in such instances. The particular challenges associated with modelling distributions of alien organisms and of organisms in the face of climate change are also currently of wide interest, and submission of work on these themes is encouraged.

CONSERVATION PLANNING, ASSIGNING PRIORITIES AND RISK ANALYSIS

Humans cause conservation problems; humans perceive and contextualize the need for conservation and the many problems associated with achieving desired levels of conservation; and humans decide whether, when, where and how to manage such problems. A major challenge is to collate layers of information from multiple sources and to use such information to formulate objective strategies for action. *Diversity and Distributions* welcomes papers that explore paradigms, models and frameworks for systematic conservation planning. Such studies should ideally be problem-focused, rather than taxon- or site-focused. For example, a paper entitled 'The role of process X in defining conservation priority: the case of taxon Y in region Z' may make a stronger claim than one entitled 'Conservation priorities for taxon Y in region Z'. Approaches for linking information and perspectives from multiple sources or disciplines (e.g. incorporating evolutionary processes; Carvalho *et al.*, 2011) are urgently needed. The examination of special problems for planning in particular systems (e.g. freshwater ecosystems; Hermoso *et al.*, 2012) is an important avenue of research that fits the scope of *Diversity and Distributions*. Many recent studies have lamented the limited value of conservation planning devised in the ivory towers of academia and research institutes. The journal welcomes transdisciplinary studies that seek practical strategies that combine science-based conservation plans with other layers of information that define real-world realities or that evaluate past conservation initiatives. Scenario planning is an appropriate technique for shedding light on the multiple complexities and high degree of uncertainty about drivers of environmental change and their interactions, and the challenges associated with devising objective strategies for management. This is a fertile area for research, and we look forward to receiving submissions on this topic. Many decisions in conservation management are now framed in the context of risk analysis and assessment, and this is an area that we would like to feature much more in the pages of *Diversity and Distributions*. We are particularly interested in risk analyses that grapple with fundamental issues or that offer methodological innovations in relevant areas of conservation biology. Applications of risk analysis that treat single issues and that have limited implications for conservation management are unlikely to be published.

CLIMATE CHANGE: ECOLOGY AND MANAGEMENT

A major issue in ecology, biogeography, conservation biology and invasion biology is the extent to which climate, and hence the climate change, influence the range boundaries of organisms (Thomas, 2010). Understanding potential responses of taxa to climate change is a fundamental requirement for the development of effective long-term conservation strategies. Perusal of recent issues of *Diversity and Distributions* and our sister journals shows that research in this area covers a wide range of themes, including challenges relating to specific taxa or analytical methods (e.g. Hill *et al.*, 2011; Jenkins *et al.*, 2011; Renwick *et al.*, 2012); the elucidation of barriers to dispersal at different scales (Keith *et al.*, 2011); assessing the vulnerability of taxa to climate change and defining target areas for reducing vulnerability at different scales (e.g. Crossman *et al.*, 2012); and the development of decision-making tools for integrating projections of climate-driven changes for urban planning, conservation prioritization, wildlife management, etc. (Traill *et al.*, 2011). Secondary impacts of climate change resulting from human adaptation to changing climates are the focus of many studies (e.g. Bradley *et al.*, 2012), and studies on this theme are

very suitable for the journal. The rapidity of predicted climate change and the potentially drastic implications for global biodiversity have resulted in several radical conservation measures being proposed. One of these is managed translocation (or assisted migration), which involves the intentional movement of biological units from current areas of occupancy to locations where the probability of future persistence is predicted to be higher (Richardson *et al.*, 2009). Such measures raise substantial challenges for conservation biogeography and will surely be the focus of increasing research effort in the future.

BIOLOGICAL INVASIONS

Invasive species are a major threat to biodiversity. Biological invasions also create natural experiments over spatial and temporal scales impossible to emulate in formal experiments (Richardson, 2011). These experiments can elucidate fundamental determinants of community membership, the links between diversity (variously defined) and ecosystem functioning, and many other topics in ecology and biogeography. Global reviews of introductions, invasions and control efforts in different groups have much potential for improving management strategies (e.g. Wilson *et al.*, 2011). *Diversity and Distributions* has published many influential papers on the topic of biological invasions and will continue to carry many papers on this topic. However, we decline without review papers that deal with topics relating to invasive species that lack a biogeographical component (e.g. studies focusing on single species or a single locality) or which have little clear message for management. Invasion-related topics that are appropriate for the journal include the following: macroecological perspectives (e.g. elucidation of determinants of invasiveness or invasibility through comparisons of the performance of different taxa at different localities, including phylogenetic perspectives; Miller *et al.*, 2011); exploring the links between different drivers and mediators of invasiveness and invasibility (e.g. linking propagule pressure, residence time and other factors in different types of models; Catford *et al.*, 2011); the formulation of strategies to understand and manage biosecurity issues in the face of rapid global change (Van Wilgen *et al.*, 2011); and new tools for identification, detection and surveillance, and mapping of invasive species at different scales, and methods for linking these with decision-making tools for management (Roura-Pascual *et al.*, 2010). The elucidation of pathways of introduction and dissemination and the implications for management is very important (Wilson *et al.*, 2009; Keller *et al.*, 2011).

MOLECULAR ECOLOGY AND PHYLOGEOGRAPHY

Diversity and Distributions receives many papers that apply molecular ecological approaches for elucidating numerous important issues in conservation biogeography. We decline without reviewing most papers that use genetics simply to describe the patterns in different parts of a species' range or to reconstruct historical movement patterns, including human-mediated introductions. Exciting opportunities exist for using molecular ecology to address questions of broader interest in conservation biogeography, using particular taxa, regions or dispersal pathways (sensu Wilson *et al.*, 2009) as exemplars (e.g. Rodríguez-Echeverría *et al.*, 2011). Many papers we receive compare genetic diversity and structure between the native and introduced ranges of taxa. The documentation of diversity levels and sources of origin of introduced, naturalized or invasive taxa is no longer enough in itself to warrant consideration in the journal. Further analysis or insights (e.g. evidence for local adaptation), as well as elucidation of the interactions of processes (e.g. propagule pressure, residence time) and the implications for management, are essential.

CONCLUSION

Conservation biogeography is now well established as an exciting and important field in the cloud of subdisciplines associated with biogeography, ecology and environmental management. The challenges in biodiversity conservation are increasing rapidly, and innovative approaches and tools are urgently needed. I hope you will agree that *Diversity and Distributions* has carved an important niche for itself in the growing number of journals dealing with conservation.

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